

**Draft Agenda for
Staff Workshop on the
Natural Gas Supply and Infrastructure Assessment paper
and
Discussion Questions**

Friday, January 24, 2003

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|-----------------|---|
| 9:30 – 9:45 | Welcoming Remarks and Introduction (Jairam Gopal) |
| 9:45 – 10:15 | Natural Gas Demand

Summary of demand chapter in Staff Paper (Mignon Marks)
Plans for preparing next forecasts (Lynn Marshall, David Vidaver) |
| 10:15 – 11:30 | Natural Gas Supply (Leon Brathwaite)

Summary of supply chapter in Staff Paper
Plans for preparing next forecast
Public comments |
| 11:30 – 1 p.m. | Lunch (on own) |
| 1 p.m. – 2 p.m. | Natural Gas Prices (Todd Peterson)

Summary of price chapter in Staff Paper
Plans for preparing next forecast
Public comments |
| 2 p.m. – 3 p.m. | Natural Gas Infrastructure (Bill Wood)

Summary of infrastructure chapter in Staff Paper
Plans for preparing next forecast
Public comments |
| 3 p.m. – 4 p.m. | Natural Gas Reliability and Supply and Price-Risk Issues

Summary of the <i>California Integrated Natural Gas/Electric Risk Methodology</i> report (Bob Logan)
Plans for conducting risk assessment
Public comments |

Adjourn

Discussion Questions for Natural Gas Workshop

The Energy Commission staff published the *Natural Gas Supply and Infrastructure Assessment*, which is posted on the Commission's web site at:

http://www.energy.ca.gov/reports/2002-12-12_700-02-006F.PDF . A Notice of Workshop is also posted, providing the details for a workshop to be held at the Commission on January 24, 2003. Please see http://www.energy.ca.gov/naturalgas/notices/2002-12-23_notice_workshop.html for details on the workshop.

Interested parties are requested to provide comments on the assessment paper and also to provide input with respect to the depth of analysis; and specific issues to be addressed in staff's analysis for the 2003 Integrated Energy Policy Report at the workshop on January 24 2003 to be held at the California Energy Commission.

This document lists a series of questions to which staff would like responses from the interested parties. The set of questions listed herein is designed to elicit input from all participants and provide staff the opportunity to refine the methodology implemented to ensure that the analysis considers all relevant issues, maintains an objectivity in the process and provides the necessary information to the participants.

Staff requests responses to the questions be provided prior to the workshop, thereby facilitating a more informative discussion. Along with this document, a draft Agenda for the Workshop is also posted. Parties wishing to make a presentation are requested to call and inform staff so the agenda can be organized well. For details on participating in the workshop and in providing your input, please see the Workshop Notice at link provided above.

Discussion Questions for Natural Gas Workshop

Natural Gas Supply

1. What is the outlook for future production from the natural gas resource areas currently serving California and the connected North American natural gas grid?
2. What level of drilling in the resource areas serving California and North America as a whole, is likely to be needed to maintain or expand production?
3. What new information should the staff consider in its analysis of the natural gas supply outlook for resource areas serving California and North America as a whole?

4. The staff projected the following production in 2007 from each resource area serving California:

California – 0.330 Tcf
San Juan – 2.015 Tcf
Permian – 1.636 Tcf
Anadarko – 2.347 Tcf
Rocky Mountains – 2.835 Tcf

- a) Are these projections of supply-basin performance reasonable?
 - b) Is the staff projection of 0.681 Tcf of Canadian imports into California reasonable?
5. The staff currently assumes 640 Tcf of “potential” natural gas resources in the lower 48 states. Of these potential resources, 275 Tcf is conventional, 72 Tcf is coal-bed methane, and 293 Tcf is tight sands or continuous formations.
 - a) Are these reasonable estimates?
 - b) In subsequent analysis, how should the staff account for “potential” resources in the lower 48 states assuming developers currently have or are expected to have limited or no access to the resource?
 - c) Will access to natural gas resources in the Rocky Mountains be seriously limited in the future?
 6. The staff currently assumes 332 Tcf in “potential” natural gas resources in Canada. Of these resources, 282 Tcf is conventional and 50 Tcf is coal-bed methane.
 - a) Are these reasonable assumptions?
 - b) Should the staff include the Mackenzie Delta pipeline in its base case? If so, what should the staff assume for flow capacity, cost to build, and year of commercial operation?
 - c) Should the staff include the Alaska Natural Gas Transportation System pipeline in the base case? If so, what should the staff assume for flow capacity, cost to build, and year of commercial operation?
 7. As shown on Table 3 in the staff paper, there were 15,837 and 22,083 wells drilled in 2000 and 2001, respectively. These compare to an average of approximately 10,000 wells drilled during the 1990s.

What is the significance of these numbers? For example, has there been an increase in the number of dry wells, a decrease in output per well, or were the capital costs per well significantly higher during the 1990s?

8. How much drilling would be needed to support 9.5 Tcf growth in supply in US and Canada (from 26 Tcf in 2002 to 35.5 Tcf in 2012), as projected in the staff assessment? Is this level of drilling feasible?

Liquefied Natural Gas

9. A number of companies are planning to build LNG import facilities on the West Coast. Please describe the proposed West Coast LNG facilities and their current status.
10. Should the proposed liquefied natural gas (LNG) import facilities on the West Coast be added to the staff's next base case analysis for the *Integrated Energy Policy Report*?

Natural Gas Infrastructure Needs

11. The staff paper identified a substantial amount of new pipeline capacity along the El Paso North/Transwestern pipeline corridor and along the Havasu Crossover that could help to meet growing natural gas demand in southern Nevada, western Arizona, and Northwestern Baja Mexico region. The paper also identified several alternative projects for future analysis.
 - a) Are these identified pipeline expansions and their timings reasonable?
 - b) What other projects, if any, should the staff consider to meet the growing demand?
12. The staff paper discusses several intrastate alternatives that could meet the future capacity needs. Are there other projects that should be considered?
13. The paper also discusses future infrastructure needs of the state's three largest natural gas utilities. It indicated that upgrades to the SoCal Gas Company's receiving capacity are sufficient to meet its requirements for the next ten years, including those of SDG&E. Also, while the paper does not say so directly, it implies that receiving capacity into SDG&E is adequate as a result of the start up of the North Baja pipeline. Is this a reasonable inference to draw from the analysis?
14. For the PG&E service area, the paper indicates that new receiving capacity will be needed after 2007. Is there any information that might alter this conclusion?
15. In what ways would demand response and distributed generation affect the need to build new natural gas infrastructure and the outlook for natural gas prices?

Natural Gas Reliability and Supply and Price-Risk Issues

16. The National Petroleum Council qualifies its price projections with statement:

“The Council wishes to emphasize that the price output of the model is not to be used as a forecast, but rather as an indicator of the relative influence of the critical factors and assumptions.” (*Natural Gas: Meeting the Challenges of the Nation’s Natural Gas Demand*, December 1999)

Should the Energy Commission apply the same qualifications to its natural gas price forecasts? Also, the Staff conducted the integrated price and supply outlook to provide an upper and lower bound on prices around a basecase price projection.

- (a) Is this method a useful tool to evaluate expected market and price trends?
 - (b) Do the staff analyses provide the needed information to help evaluate the energy issues in the market place?
 - (c) If not, what alternatives should staff consider?
17. Will market responses (i.e., changes in supply and demand) to today’s high prices for natural gas futures result in lower prices for natural gas in the spot market by the relevant delivery date, thereby negating the value of today’s futures prices as a forecasting tool?
18. The staff is proposing to conduct seasonal worst-case sensitivity analysis to test the adequacy of the state’s pipeline and storage infrastructure as part of the upcoming *Integrated Energy Policy Report*. The staff is seeking guidance regarding assumptions that should be used in conducting this analysis. Please provide specific guidance regarding the following weather conditions to be modeled:
- a) Dry year - How dry, how regionally extensive, and for what duration?
 - b) Hot summer - How hot and regionally extensive?
 - c) Cold winter - How cold and regionally extensive?
 - d) Other conditions to be considered?
 - e) What combinations of the dry year, hot summer, and cold-winter weather should be considered?
 - f) How should the probability of such weather conditions be determined?
 - g) How should weather, pipeline flows, and natural gas storage use be factored into the analysis?
19. Given that natural gas prices are likely to fluctuate in response to changes in weather, investment boom-bust cycles and other factors, how should staff think about natural gas prices in evaluating infrastructure and related risk-management policies?
20. Is there a risk that financing will be unavailable for the pipeline infrastructure needed to support the level of growth for natural gas in the market place? What impacts on price

and supply should be expected if investment dollars are not available to the natural gas industry?

21. Given the recent financial disruptions in energy markets nationally, has there been a fundamental shift in the rate of return required to invest in natural gas infrastructure? How might this impact future price trends?
22. Will market incentives support enough investment in interstate pipeline capacity to serve the needs of California during droughts and adverse temperature conditions?
23. How do the local distribution companies use financial-hedging instruments in conjunction with physical assets as a risk-management tool?
24. Please provide comments on the consultant report, *California Integrated Natural Gas/Electric Risk Methodology*, which is available on the Energy Commission website at: http://www.energy.ca.gov/reports/2003-01-09_700-02-008F.PDF.
